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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/617,146

07/10/2003

Anca Faur-Ghenciu

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10/04/2007

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SUITE 1300

DAYTON, OH 45402-2023

EXAMINER

HANDAL, KAITLY V

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

10/04/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/617,146

Applicant(s)

FAUR-GHENCIU ET AL.

Examiner

Kaity Handal

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/17/2007</u>   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-61 are rejected under 35 U.S.C. 103(a) as obvious over Silver (US 6,455,182 B1) in view of Nunan (US 6,040,265).

With respect to claims 1-2, 4, 12-13, 15-16, 24-25, 27-29, 36-37, 42, 44-45, 50-51, 53-55, 59-60, Silver teaches placing a high activity water gas shift catalyst system into a water gas shift converter and passing the process fuel gas through the water gas shift converter in effective contact with the high activity water gas shift catalyst system (Ceria based catalyst) and converting a portion of the carbon monoxide in the process fuel gas into carbon dioxide and hydrogen by a water gas shift reaction (Abstract). Silver however does not provide details the presence of promoters and does not disclose the claimed weight percentages of cerium oxide and zirconium oxide. Nunan teaches an apparatus for reducing an amount of carbon monoxide in process gas wherein the catalyst is a ceria based catalyst which promotes water gas shift reactions (col. 1, lines 43-56), the catalyst system comprising a noble metal/(Pt or Pd) (col. 10, line 65); a mixed metal oxide support consisting essentially of cerium oxide and zirconium oxide, wherein cerium oxide is

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present in an amount from about 45% to about 90% by weight of mixed metal oxide and zirconium/lanthanum oxide is present in amount from about 10% to 55% by weight of mixed metal oxide (col. 10, lines 64 col. 11, lines 1-5), and a promoter comprising Yttrium (col. 11, line 7) in order to enhance the Ce or Zr promotional effect on catalyst performance in CO and NO<sub>x</sub> oxidation (col. 20, lines 45-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the catalyst of Silver with the catalyst composition taught by Nunan in order to provide an enhanced Ce or Zr promotional effect on catalyst performance in CO and NO<sub>x</sub> oxidation.

With respect to claims 3, 14, 26, 38, 46, 56, Nunan further teaches wherein the noble metal/(group VIII) is present in an amount of between about 0.01% to about 4% by weight of total catalyst (col. 13, lines 40-43).

With respect to claims 5, 17, 30, 43, 52, 61, Nunan further teaches wherein the promoter is present in an amount of between 1% and about 20% by weight of total catalyst (col. 14, lines 23-25).

With respect to claims 6-7, 18-19, 31, 39-40, 47-48, 57, Nunan further teaches wherein the mixed metal oxide support further comprises a support dopant/(additional promoter) selected from lanthanum (col. 14, lines 8-15).

With respect to claims 8, 20, 32, Nunan further teaches wherein the support dopant/(additional promoter) is in the form of a metal oxide (col. 14, lines 8-21).

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With respect to claims 9, 21, 33, 41, 49, 58, Nunan further teaches wherein the support dopant/(additional promoter) is present in an amount of between about 1% and about 20% by weight of mixed metal oxide (col. 14, lines 8-25).

With respect to claim 10-11, 22-23, 34-35, Nunan further teaches wherein the process fuel gas passes through the water gas shift at a temperature of about 225°C (col. 15, lines 53-57).

If the options in the Nunan as to the various catalyst/promoter/dopant material groups appear non-anticipatory, then it is deemed obvious to one having skill in the art to choose from these options.

### **Response to Arguments**

#### **35 USC 112**

Rejection made to claim 1 under 35 USC 112 is withdrawn by examiner due to applicant's amendment.

#### **Prior Art**

Applicant's arguments with respect to claims 1-61 have been considered but are moot in view of the new ground(s) of rejection.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH 

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9/26/2007

  
GLENN A. CALDAROLA  
PRIMARY EXAMINER  
GROUP 1100

TC1700